



***K-BUS - Driver of Protocol for
VIESSMANN Decamatic Boiler PLCs
User's Manual***

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1. K-BUS - Driver of Protocol for VIESSMANN Decamatic Boiler PLCs

1.1. Driver Use

The K-BUS driver is used for data exchange between VIESSMANN Dekamatic boiler PLCs connected to the Dekatel-G (Vitocom 200) concentrator and an **asix** system computer. For communication with **asix** an interface of the RS-232C standard is used.

1.2. Declaration of Transmission Channel

The full syntax of declaration of transmission channel which uses the K-BUS protocol is given below:

logical_channel_name=K-BUS, *id*, *port* [, *alarm_offset*]

where:

K-BUS	- driver name,
<i>id</i>	- identifier of the regulator,
<i>port</i>	- port name: COM1, COM2 etc.,
optional parameters:	
<i>alarm_offset</i>	- offset added to the number of alarm sent from the regulator. By default, the value of offset equals 0.

The list of identifiers assigned to individual regulators is given below:

- 1 - Dekamatic-D1/Dekamatic-DE
- 2 - Dekamatic-D2 (Kesselregelung 2. Kessel)
- 3 - Dekamatic-D2 (Kesselregelung 3. Kessel)
- 4 - Dekamatic-HK (1. und 2. Heizkreis)
- 5 - Dekamatic-HK (3. und 4. Heizkreis)
- 6 - Dekamatic-HK (5. und 6. Heizkreis)
- 7 - Dekamatic-HK (7. und 8. Heizkreis)
- 8 - Dekamatic-HK (9. und 10. Heizkreis)
- 9 - Dekamatic-HK (11. und 12. Heizkreis)
- 10 - Dekamatic-HK (13. und 14. Heizkreis)
- 11 - Dekamatic-HK (15. und 16. Heizkreis)

Transmission parameters are constant:

- 1200 Bd,
- 8 bits of a character,
- parity check: even,
- one stop bit.

EXAMPLE

A declaration of the logical channel named CHAN1, which works according to the K-BUS protocol and exchanges the data with the regulator Dekamatic-DE (id 1) through the COM2 port is as follows:

CHAN1 = K-BUS, 1, COM2

The K-BUS driver is loaded as a DLL automatically.

1.3. Addressing the Process Variables

The syntax of symbolic address which is used for variables belonging to the K-BUS driver channel is as follows:

$V<index>$

where:

V	- fixed symbol of the variable type,
$index$	- variable index, compatible to the table of addresses of variables for the controller under consideration (given in HEX form).

Raw values of the variables are transferred by the driver as numbers of the WORD type.

Examples of declaration of variables:

```
# max boiler temperature (id 12 HEX)
JJ_1, V12, CHAN1, 1, 1, NOTHING
```

```
# external temperature (id 25 HEX )
JJ_2, V25, CHAN1, 1, 1, NOTHING
```

1.4. Driver Configuration

The K-BUS protocol driver may be configured by using the **[K-BUS]** section placed in the application INI file. Individual parameters are transferred in separate items of the section. Each item has the following syntax:

item_name=[number [,number]] [YES] [NO]



LOG_FILE=file_name

Meaning	- the item allows to define a file where all diagnostic messages of the K-BUS driver and information about the content of telegrams received by the driver are written. If the item does not define its full path, then the log file is created in the current directory. The log file should be used only while the asix start-up.
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Default value	- by default, the log file is not created.
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LOG_OF_TELEGRAMS=YES/NO

Meaning	- the item allows to write to the log file (declared by using the item LOG_FILE) the contents of telegrams sent within the communication with regulators. Writing the contents of telegrams to the log file should be used only while the asix start-up.
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Default value	- by default, the telegrams are not written.
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**LOG_FILE_SIZE=number**

- Meaning - the item allows to define the log file size in MB.
 Default value - by default, it is assumed that the log file has a size of 1 MB.

**RECV_TIMEOUT=id,number**

- Meaning - the item allows to determine a maximal waiting time for arriving the first character of the answer from a given regulator. After this time is over it is assumed that the controller under consideration is turned off and the transmission session ends with an error.
- Default value - by default, it is assumed that the maximal waiting for the first character of the answer is equal to 1000 milliseconds.
- Parameter:
- id* - number of the regulator,
 - number* - time in milliseconds (from 100 up to 5000).

**CHAR_TIMEOUT=id,number**

- Meaning - the item allows to determine a maximal time between successive characters of the answer from a given regulator. After having exceeded this time it is assumed that the regulator under consideration does not work correctly and the transmission session ends with an error.
- Default value - by default, it is assumed that the maximal time between successive characters of the answer is equal to 50 milliseconds.
- Parameter:
- id* - number of the regulator,
 - number* - time in milliseconds (from 10 up to 300).

Delay After Having Mapped the Data in Concentrator Dekatel-G (Vitocom 200)

Dekatel-G (Vitocom 200) concentrators allow simultaneous reading 8 variables maximally. The work mode with the concentrator consists in successive execution of the following functions for the successive group of variables:

- transfer of a list of maximally 8 variables to the concentrator (so called concentrator mapping),
- wait for updating the variables in the concentrator after mapping,
- reading the variables from the concentrator.

**MAPPING_DELAY=number**

- Meaning - the item allows to determine the time, which must elapse between mapping and the first reading of data from the concentrator so that the read data might be assumed as reliable. In case of too short delay the risk of reading the values of variables which were registered in the concentrator before mapping exists.
- Default value - by default, the parameter assumes a value of 35 seconds.
- Parameter:

number - time in seconds.

NOTE

The protocol specification does not give the formula to calculate the delay after concentrator mapping, therefore this parameter must be determined experimentally by the user.

**GLOBAL_ALARMS=YES/NO**

Meaning - the item controls the way of transferring alarms read from regulators to the alarms system of **asix** start-up.

Default value - by default, the alarms are transferred to the alarms system as global alarms (transferred to the alarms system by means of the function *AsixAddAlarmGlobalMili()*). Setting the value of the item GLOBAL_ALARMS on NO causes that the alarms are transferred to the alarms system by means of the function *AsixAddAlarmMili()*.

**SIGNED_VARIABLE = YES/NO**

Meaning - the item determines the way of interpretation of the BYTE variable. Setting the value on NO makes the SIGNED CHAR interpretation be given to the variable – it allows transferring the negatives.

Default value - by default, and in the case of setting the variable on YES the variable of the BYTE type assumes the UNSIGNED CHAR interpretation.

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